

Amendments to the Specification:

Please replace the paragraph beginning on Page 3, line 17, with the following amended paragraph:

The field of use of the arrangement according to the invention can be extended ~~in accordance with claim 2~~ by performing the first and second modes of operation in a combined form in a third mode of operation. In the third mode of operation, parts of the region of action can be heated up and information on the position in space of the magnetic particles can be obtained at the same time. This is possible because the position in space of the two sub-zones is also changed during the heating-up, as a result of which signals from which information can be obtained on the spatial distribution of the magnetic particles are generated by the magnetic particles (in a similar way to what happens in the first mode of operation).

Please replace the paragraph beginning on Page 3, line 26, with the following amended paragraph:

The gradient field of the arrangement according to the invention may, for example, be generated with permanent magnets. An inhomogeneous magnetic field that has a small, first sub-zone of

low field strength surrounded by a second sub-zone of greater field strength forms in the region between two poles of the same polarity. Only in the particles that are situated in the zone around the point at which the field is zero (the first sub-zone) is the magnetization not saturated. In the particles outside this zone the magnetization is in a state of saturation. To make the gradient field switchable or easily adjustable, rather than an arrangement having permanent magnets there is provided ~~in accordance with claim 3~~ a gradient coil arrangement for generating, in the region of action, a gradient field that is similar to the magnetic field described above. If the gradient coil arrangement comprises for example two windings of the same kind which are arranged on the two sides of the target region but through which currents flow in opposite directions (Maxwell coils), then the magnetic field in question is zero at a point along the axis of the windings and increases almost linearly at opposite polarities on the two sides of this point.

**Please replace the paragraph beginning on Page 4, line 6, with the following amended paragraph:**

One possible way of changing the position in space of the two sub-zones is for a coil and/or permanent-magnet arrangement (or parts thereof) intended for generating the magnetic field on the one hand, or the object containing the magnetic particles on the other hand, to be moved relative to one another. This is a preferred method when very small objects are being examined with very high gradients (microscopy). ~~By contrast, claim 4 describes a preferred~~ One embodiment that of the present system does not require any mechanical movements. If this magnetic field follows a suitable pattern over time and is suitably oriented, the zero point of the field can pass through the region of action in this way. The position in space of the two sub-zones can be changed relatively quickly in this case, which provides additional advantages for the acquisition of signals that depend on the magnetization in the region of action.

**Please replace the paragraph beginning on Page 4, line 17, with the following amended paragraph:**

The variation in magnetization that goes hand in hand with the displacement of the zero point of the field can be detected ~~in the refinement claimed in claim 5~~. The coil used for receiving the signals generated in the examination zone may in this case be a coil that is already being used to generate the magnetic field in the examination zone. There are, however, also advantages in using a separate coil for reception, because this coil can be decoupled from the coil arrangement that generates a temporally variable magnetic field and in this way can be optimized in respect of the reception of the signals. Also, an improved signal-to-noise ratio can be obtained with a coil, but even more so with a plurality of coils.

**Please replace the paragraph beginning on Page 5, line 9, with the following amended paragraph:**

For the local heating-up of the magnetic particles, the position in space of the two sub-zones of the magnetic field is changed continuously. In a similar way to what occurs in step b) of

the method, this produces signals from which details relating to the spatial distribution of the magnetic particles can be derived.

If these signals are ~~acquired in accordance with claim 7~~, then information on the spatial distribution can be produced at the same time during the heating-up.